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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,817	03/28/2003	Charles F. Marino	END920010104US1	4278

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EXAMINER

CHOW, JEFFREY J

ART UNIT	PAPER NUMBER
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2628

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,817

Applicant(s)

MARINO, CHARLES F.

Examiner

Jeffrey J. Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37

CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

In the brief summary of the figures, Figure 3 represents an 8 by 8 multiplier, Figure 5 represents an 8 by 8 multiplier bit sliced into a 6 by 6 multiplier and a 5 by 5 multiplier, Figure 6 represents a 6 by 6 multiplier, Figure 7 represents a 5 by 5 multiplier, and Figures 8 and 9 represent 4 by 4 multipliers. None of the figures mentioned above illustrates their respective multiplier. Figure 3 represents an 8 by 7 multiplier, Figure 5 represents an 8 by 7 multiplier bit sliced into a 6 by 5 multiplier and a 5 by 4 multiplier, Figure 6 represents a 6 by 5 multiplier, Figure 7 represents a 5 by 4 multiplier, and Figures 8 and 9 represent 4 by 3 multipliers.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected under the same objections as the drawing objections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 6 and 8 – 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Blomgren (US 5,935,198).

Regarding independent claim 1, Blomgren discloses a pixel format where each pixel have 4 8-bit components (R, G, B, A) (column 1, lines 44 – 60) and blending or interpolating two objects together (column 5, line 60 – column 6, line 61), which reads on the claimed receiving a request for blending the at least two images, each image having a pixel format. Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated simultaneously in a larger multiplier (column 13, lines 28 – 43), which reads on the claimed reconfiguring each blending unit multiplier to perform at least two operations per cycle.

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Regarding dependent claim 2, Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated simultaneously in a larger multiplier (column 13, lines 28 – 43), which reads on the claimed bit slicing each multiplier according to the pixel format.

Regarding dependent claim 3, Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated simultaneously in a larger multiplier (column 13, lines 28 – 43) and the operands accommodating a plurality of bits, such as 8-bits or 16-bits (column 6, lines 53 – 56), which reads on the claimed bit slicing each multiplier to accommodate a first bits/pixel parameter of the pixel format.

Regarding dependent claim 4, Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated simultaneously in a larger multiplier (column 13, lines 28 – 43) and the operands accommodating a plurality of bits, such as 8-bits or 16-bits (column 6, lines 53 – 56), which reads on the claimed bit slicing each multiplier to accommodate a second bits/pixel parameter of the pixel format.

Regarding dependent claim 5, Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated

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simultaneously in a larger multiplier (column 13, lines 28 – 43) and the operands accommodating a plurality of bits, such as 8-bits or 16-bits (column 6, lines 53 – 56) and where the first bit is the most significant bit, being the bit on the far left of the operands and the product (Figure 9), which reads on the claimed first bits/pixel parameter is a highest bits/pixel parameter of the pixel format.

Regarding dependent claim 6, Blomgren discloses the full-size multiplier may be divided into smaller sections which can operate independently for 8-bit multiplies, or together as one large multiplier for 32-bit multiplies and all four smaller pixel components can be interpolated simultaneously in a larger multiplier (column 13, lines 28 – 43), which reads on the claimed highest bits/pixel parameter is no higher than 8 bits/pixel and no less than 1 bit/pixel.

Regarding claims 8 – 10 and 13 – 15, claims 8 – 10 and 13 – 15 are similar in scope as to claims 1 – 4, thus the rejections for claims 1 – 4 hereinabove are applicable to claims 8 – 10 and 13 – 15. Blomgren discloses a processor unit and a memory graphics processor circuitry (claim 9).

Regarding dependent claim 11, Blomgren discloses the binary multipliers adapted for 3-D graphics calculations (column 1, lines 10 – 12), which reads on the claimed blending unit is part of a graphics engine.

Regarding dependent claim 16, claim 16 is similar in scope as to claim 11, thus the rejections for claim 11 hereinabove is applicable to claim 16.

Regarding dependent claim 12, Blomgren discloses the interpolation instruction being used for a white fog effect (column 3, lines 19 – 53) and other color interpolation operation such as anti-aliasing, depth cueing, texture-map interpolation, alpha blending, fog, translucency,

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Phong shading and Gouraud shading (column 3, lines 58 – 65), which reads on the claimed graphics engine further comprises at least one of a raster operator, a color key operator, a pixel bit mask operator, a patten write mask operator and a pixel boundary modify write operator.

Regarding dependent claim 17, claim 17 is similar in scope as to claim 12, thus the rejections for claim 12 hereinabove is applicable to claim 17.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blomgren (US 5,935,198) in view of Flahie et al. (US 5,912,832) and Christensen et al. (US 5,612,710).

Regarding dependent claim 7, Blomgren did not expressly disclose dividing an 8-bit x 8-bit multiplier to perform at least two operations per cycle. Flahie discloses dividing an 8-bit x 8-bit multiplier into four 4-bit by 4-bit multipliers. Christensen discloses multicolor pixel word is a 16-bit word including 4 sets of 4-bits, each set describing a color (claim 3). It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Blomgren's system by dividing an 8-bit x 8-bit multiplier into 4 sets of 4-bit x 4-bit multiplier to perform interpolation on a 16-bit word color value where each set represents a color or even to perform interpolation of any n-bit x n-bit multiplication operation in any size multiplier where n is greater than or equal to 1 and n is less than the size of the multiplier's dimensions. One would be

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motivated to do so because parallel interpolation significantly improves throughput and to be compatible to perform interpolation of any n-bit color format, such as a 4-bit color format.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blomgren (US 5,935,198) in view of Allen et al. (US 5,838,387).

Regarding dependent claim 18, Blomgren did not expressly disclose a scalar in the graphics system. Allen discloses a video scaling engine for scaling video data (abstract). It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Blomgren's system to include a scalar. One would be motivated to do so because scaling data to a desirable size can improve bandwidth in communication or change a level to the desired detail in rendering images.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey J. Chow whose telephone number is (571)272-8078. The examiner can normally be reached on Monday - Friday 10:00AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJC



ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER